



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,594	12/04/2003	Akira Gyoutoku	P24651	6999
7055	7590	09/29/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,594

Applicant(s)

GYOUTOKU ET AL.

Examiner

Hai C. Pham

Art Unit

2861°

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 10-20 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/18/04, 6/25/04, 11/03/04

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means," "said," and "comprise," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract uses the terminologies that should be avoided, e.g., "means" (lines 3, 8, 9, 11 and 13) and "comprising" (line 3). Correction is required. See MPEP § 608.01(b).
4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

5. Claims 7 and 10 are objected to because of the following informalities:

Claim 7:

- Line 6, "exposure head" should read --exposing device--.

Claim 10:

- Line 6, "exposure head" should read --exposing device--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 6, 8, 10-11, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koumura et al. (U.S. 6,266,074) in view of Yokoyama et al. (U.S. 6,607,277).

Koumura et al. discloses an image forming apparatus having an organic light emitting print head, which includes an organic electroluminescence element (Fig. 3) having an anode (202) for injecting a hole, a luminescent layer (203) having a single layer structure or a multiple layer structure of luminescent region and a cathode (204) for injecting an electron on a board (substrate 201) (col. 4, lines 21-33), a temperature control system having temperature sensors located on the print head, and light intensity detecting means for monitoring the drive current.

Koumura et al. fails to teach the cooler for cooling the organic electroluminescence element, the plural types of the cooler, and the controller for operating the cooler such that the temperature of the print head varies within a range of  $\pm 20^{\circ}\text{C}$  or  $\pm 14^{\circ}\text{C}$ .

Yokoyama et al. discloses a display device comprising light source units (101) employing organic electroluminescence elements, which include an anode (102) for injecting a hole, a luminescent layer (103) having a luminescent region and a cathode (104) for injecting an electron on a board (substrate 101), wherein the light emitting units are provided with a cooler (107) in the form of a heat sink (106), a device having Peltier effect that cools the back face of the organic electroluminescence element, heat-dispersing fan (108), heat-radiating fin (32), a sheet exhibiting high thermal conductivity (col. 22, lines 1-8). Yokoyama et al. further discloses a temperature sensor (110) for detecting the temperature of the light emitting unit and a controller for operating the electronic cooling element (107), and controlling the cooling switch (114) to control the temperature of the light-emitting unit within a range of  $10^{\circ}\text{C}$  (col. 21, lines 9-13).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a temperature-controlled cooling system to the device of Koumura et al. as taught by Yokoyama et al. The motivation for doing so would have been to protect the life span of the organic electroluminescence elements.

8. Claims 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koumura et al. in view of Yokoyama et al. and De Cook et al. (U.S. 5,751,327).

Koumura et al. in view of Yokoyama et al. discloses all the basic limitations of the claimed invention except for the cooler including a cooling medium pipe or a liquid medium.

De Cook et al., an acknowledged prior art, discloses a printer including a temperature controlled LED recording head, which is provided with a U-shaped duct inside of a thermally conductive body for carrying a cooling fluid.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the cooler in the form of the cooling medium pipe carrying the cooling fluid to the device of Koumura et al. as taught by De Cook et al. The motivation for doing so would have been to provide a dynamic heat reduction to ensure a uniform ambient temperature.

9. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koumura et al. in view of Yokoyama et al. and Maekawara et al. (U.S. 6,121,993).

Koumura et al. in view of Yokoyama et al. discloses all the basic limitations of the claimed invention except for the darkness sensor.

Maekawara et al. discloses in Fig. 6 an image forming apparatus comprising a print head having light emitting elements, a temperature sensor (not shown), a light intensity sensor (photosensor) and a densitometer for measuring the density of the developed image, wherein the drive current of the light emitting elements are controlled based on the sensing of the temperature and the measured density.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a densitometer to the modified device of Koumura et al. as taught by Maekawara et al. The motivation for doing so would have been to control the drive current of the light emitting elements to compensate for the variation of temperature and toner image density.

***Allowable Subject Matter***

10. Claim 7 is allowed.
11. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. The following is an examiner's statement of reasons for allowance: the primary reason for the indication of the allowability of claims 7 and 9 is the inclusion therein, in combination as currently claimed, of the limitation of the controller that controls the cooler to cool the exposing device to an environmental temperature in a steady state equal to or lower than a crystallizing temperature of an organic substance provided by the organic electroluminescence element, which is not found taught by the prior art of record considered alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER  
September 27, 2005